Space Weather Forecast

Issued on Monday, 15 April 2024 at 13:27 Local

This forecast provides a four day assessment of space weather events. The probabilities stated below are for reaching or exceeding the given levels. For more information about space weather impacts please see the Met Office Space Weather Scales https://www.metoffice.gov.uk/weather/learn-about/space-weather/uk-scales

Space Weather Forecast Headline: Chance G1 day 1 & 3 (15 & 17 Apr). Moderate flares likely, slight chance of Strong flares.

Solar Activity: Moderate with four low level Moderate class flares in the past 24 hours, three from AR3639 in the northeast and one from AR3634 in the northwest. There are eleven sunspot regions currently visible on the disk. The two aforementioned spots are the largest and most magnetically complex, showing signs of growth. There is another moderately complex but small spot in the southeast. The final spot to note continues to rotate around the southeast limb, showing signs of moderate size and magnetic complexity. All other spots are smaller and simple.

Two coronal mass ejections were observed, the first from a joint flare and filament eruption of AR3636 in the southeast disc on 14 Apr. The second is evident leaving the northeastern quadrant of the Sun early 15 Apr, though the exact source region is difficult to determine, further analysis is needed.

Solar Wind / Geomagnetic Activity: Solar winds displayed a slow regime. Solar wind speeds were slow-ambient. Density was below average. Interplanetary magnetic field (IMF) strength remained weak, with the north-south component also only varying weakly. Resultant geomagnetic activity was Quiet (Kp 1-2).

Energetic Particles / Solar Radiation: The count rate of energetic particles (high energy protons) was at background with no Solar Radiation Storms occurring.

Four-Day Space Weather Forecast Summary

Solar Activity: Moderate solar activity is likely, with further Moderate class flares, these probably originating from spots in the northern hemisphere. There is a slight chance of activity becoming High should any isolated Strong class flares occur.

Solar Wind / Geomagnetic Activity: There are up to two coronal mass ejections with the potential for Earth-directed components. The first is from a filament eruption on 12 Apr, which is now late. The second from a joint common class flare and filament eruption on 14 Apr, which may give a glancing blow on 17 Apr. Otherwise, no coronal hole fast winds are expected, with speeds likely background or perhaps slightly elevated.

Geomagnetic activity is expected to be generally Quiet to Unsettled through the 4 day period. There remains a chance of Active or G1/Minor storm periods on day 1 (15 Apr) and on day 3 (17 Apr) from low confidence coronal mass ejection arrivals.

Energetic Particles / Solar Radiation: The count rate of energetic particles (high energy protons) is forecast to remain at background with no Solar Radiation storms occurring.

Issued by Met Office Space Weather Advisor, Tel: +44 (0) 330 135 4254 Email: moswoc@metoffice.gov.uk

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Geomagnetic Storms:

Geo-Magnetic Storm Probability (Exceedance)	Level	Past 24 Hours (Yes/No)	Day 1 (00-24 UTC) (%)	Day 2 (00-24 UTC) (%)	Day 3 (00-24 UTC) (%)	Day 4 (00-24 UTC) (%)
Minor or Moderate	G1 to G2	No	30	5	30	5
Strong	G3	No	1	1	1	1
Severe	G4	No	1	1	1	1
Extreme	G5	No	1	1	1	1

Radio Blackouts - X Ray Flares:

X Ray Flares Probability	Level	Past 24 Hours (Yes/No)	Day 1 (00-24 UTC) (%)	Day 2 (00-24 UTC) (%)	Day 3 (00-24 UTC) (%)	Day 4 (00-24 UTC) (%)
Active	R1-R2 M Class	Yes	70	70	70	70
Very Active	R3 to R5 X	No	15	15	15	15

Solar Radiation Storms - (High Energy Protons):

Radiation Storms Probability (Exceedance)	Level (cm^{-2} sr^{-1} s^{-1})	Past 24 Hours (Yes/No)	Day 1 (00-24 UTC) (%)	Day 2 (00-24 UTC) (%)	Day 3 (00-24 UTC) (%)	Day 4 (00-24 UTC) (%)
Active	≥ S1	No	5	5	5	5
Very Active	≥ S3 *	No	1	1	1	1

* S3 ≥ 10 MeV ≥ 1000 pfu and / or ≥ 50 MeV ≥ 10 pfu. (pfu = $cm^{-2}sr^{-1}s^{-1}$)

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